ZETOR
PROXIMA POWER

90
100
110
120

2/2011

Supplement

Operator's manual

ZETOR

You are presented with a user manual amendment which covers the operation and maintenance of a new model of the **PROXIMA POWER** series 2011.
You are kindly asked to become familiar with the contents of this manual, even though you may be experienced in operating other tractors.
The manual contains new information and overview of how the tractor may be used in different kinds of work.
If the operating, maintenance and safety rules are observed, your new tractor will become a reliable companion for a long time.
We wish you thousands of successful working hours.

ZETOR
Brno

Technical specifications and information on construction, equipment, material, or outer appearance is valid at the moment of printing. The manufacturer reserves the right for any change.

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PROXIMA POWER TRACTORS

TRACTORS WITH FRONT DRIVE AXLE (4WD):

Tractor Type	Engine Power (kW)
Z90	60
Z100	66
Z110	74
Z120	81

POLICY OF CORRECT USE FOR PROXIMA POWER TRACTORS

⚠ The following rules for a proper use of the Proxima Power Tractor ease its control and secure the durability of both the engine clutch and the PTO clutch!

ENGINE CLUTCH SYSTEM DESCRIPTION

The tractor is provided with two independent engine clutches, one for the forward direction and one for the reverse direction. Moving the reverse lever from the neutral position to the forward or reverse position selects the direction of motion as well as the relevant engine clutch.

DIFFERENT WAYS TO CONTROL THE ENGINE CLUTCH

1 – with the reverse lever
2 – with the red clutch button on the gear lever
3 – with the clutch pedal

POLICY OF CORRECT USE FOR PROXIMA POWER TRACTORS

USING THE DIFFERENT WAYS TO CONTROL THE ENGINE CLUTCH

1 – with the reverse lever

This way uses the function of automatic acceleration.
Moving the reverse lever to the neutral position deactivates the engine clutch.
Moving the reverse lever to the forward or reverse positions activates the engine clutch and puts the tractor smoothly in motion in the direction selected with the reverse lever.
The activation speed of the engine clutch and the smoothness of acceleration is controlled by the electronic control unit, it's based on the information saved during calibration and cannot be influenced by the driver.

The function of automatic acceleration spares the engine clutches more than controlling the engine clutch with the clutch pedal, therefore it is recommended to be used for ordinary operation, for acceleration, changing the gears or changing the direction of motion.

2 – with the red clutch button on the gear lever

This way uses the function of automatic activation of the engine clutch.
Pressing the red clutch button on the gear lever deactivates the engine clutch.
Releasing the red clutch button on the gear lever activates the engine clutch.
The activation speed of the engine clutch is controlled by the electronic control unit, it's based on the information saved during calibration and cannot be influenced by the driver.

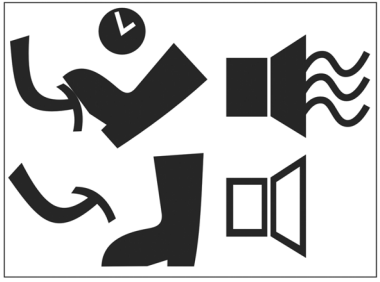
3 – with the clutch pedal

Depressing the clutch pedal deactivates the engine clutch.
Releasing the clutch pedal activates the engine clutch.
The activation speed of the engine clutch depends on how fast the clutch pedal is released.
The clutch pedal does not have the function of automatic acceleration and the speed and smoothness of acceleration is influenced by the driver.

⚠ ***In ordinary operation, the clutch pedal should only be used to stop the tractor.***

⚠ ***For precise subtle movements, e. g. when connecting tools or when operating the tractor in limited space, and only when reduced gears do not suffice for slow movement, the clutch pedal may be used for a short time.***

⚠ ***It is forbidden to partly depress the clutch pedal to regulate speed when the rotation of the engine is higher than 1,000 RPM.***
Do not use the clutch pedal as a foot support.
Breaking these rules may lower the durability of the clutch pedal or may cause malfunction of the engine clutches



DISCONTINUOUS AUDIO WARNING SIGNAL

If the speed is regulated by partly depressing the clutch pedal and the rotation of the engine is higher than 1,000 RPM a discontinuous audio warning signal goes off and the gearbox error indicator lights up. If this happens, either depress the clutch pedal to the bottom stop point immediately or completely release the clutch pedal and wait until the audio warning signal quiets and the gearbox error indicator goes out. Lower the rotation of the engine below 1,000 RPM and continue the operation of the tractor.
If this is not done after 8 seconds of intermittent acoustic warning signal goes on uninterrupted

POLICY OF CORRECT USE FOR PROXIMA POWER TRACTORS

ACCELERATING THE TRACTOR IN ORDINARY OPERATION – THE CLUTCH PEDAL

In ordinary operation, the clutch pedal should only be used to stop the tractor

For precise subtle movements, e. g. when connecting tools or when operating the tractor in limited space, and only when reduced gears do not suffice for slow movement, the clutch pedal may be used for a short time.

It is forbidden to partly depress the clutch pedal to regulate speed when the rotation of the engine is higher than 1,000 RPM.
Do not use the clutch pedal as a foot support.
Breaking these rules may lower the durability of the clutch pedal or may cause malfunction of the engine clutches.

ACCELERATING THE TRACTOR IN ORDINARY OPERATION – THE FUNCTION OF AUTOMATIC ACCELERATION

- To accelerate the tractor, use the reverse lever under the steering wheel to control the engine clutch.
- To accelerate the tractor, select the slowest **L** gear on the torque power shift (two indicators with the tortoise symbol light up on the dashboard).
  Note: After starting or stopping the engine of the tractor, the faster **H** gear is always automatically selected (no indicator with the tortoise symbol light up on the dashboard).
- If the lever for road and reduced gears is shifted in the group of road gears, shift the lowest gear to accelerate the tractor, with respect to operating conditions.
- To accelerate the tractor, use as low rotation of the engine as possible, which, however, do not cause the engine to stop. Only after activating the engine clutch, increase the rotation of the engine as needed.

POLICY OF CORRECT USE FOR PROXIMA POWER TRACTORS

STOPPING THE TRACTOR AND ACCELERATING IT AGAIN

- Under ordinary operating conditions stop the tractor smoothly. Shortly before coming to a complete stop depress the clutch pedal and stop the tractor with the brake pedal.
- Move the reverse lever under the steering wheel to the neutral (N) position.
- Release the clutch pedal completely.
- To accelerate the tractor again, follow the instructions under the paragraph **Accelerating the tractor in ordinary operation – the function of automatic acceleration.**

GEAR SHIFTING

- To shift the gears while the tractor is in motion, operate the engine clutch with the red clutch button on the gear lever.
- While shifting, press and hold the red clutch button on the gear lever, release the gas pedal, unshift the gear, shift a different gear, release the red button and then increase the rotation of the engine.
- If allowed by operating conditions, use the function of power shift preset.

THE FUNCTION OF POWER SHIFT PRESET

The system of automatic gear change of multiplier is switched on by pre-selection multiplier controller on dashboard. If the controller of multiplier pre-selection is “on” (the control on controller is lit), the gears of multiplier are shifted automatically depending on the revolution of engine based on predefined values (engine revolutions).

POLICY OF CORRECT USE FOR PROXIMA POWER TRACTORS

CHANING THE DIRECTION OF MOTION USING THE REVERSE LEVER

You can change the direction of motion with the reverse lever when the speed of the tractor is lower than 10 KPH. If attempting to change the direction of motion when the speed is higher than 10 KPH, a continuous audio warning signal goes off and the neutral gear is automatically shifted. The signal stops after moving the reverse lever back to the N position, or after depressing the clutch pedal. Then you must decrease the speed of the tractor below 10 KPH, move the reverse lever to the neutral position and shift it into the desired direction of motion again.

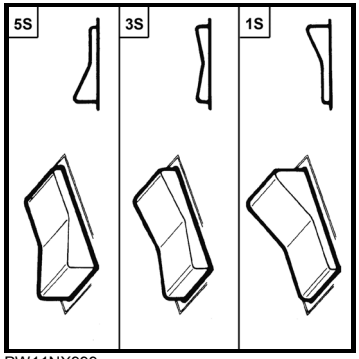
Following the instructions below when changing the direction of motion helps to extend the durability of the engine clutches.

- To change the direction of motion of the tractor, use the reverse lever under the steering wheel without using the clutch pedal.
- To change the direction of motion of the tractor, select the slowest **L** gear on the torque power shift (two indicators with the tortoise symbol light up on the dashboard).
- To change the direction of motion of the tractor, shift lower gear with respect to following acceleration and load of the tractor.

USING THE REAR PTO SHAFT

THE REAR PTO SHAFT DELAY SWITCH

The three-position delay switch on the right piller in the cab makes it possible to choose between three modes of the delay of the rear PTO shaft. The modes differ in the length of the delay between switching on the rear PTO start switch and a complete activation of the PTO shaft clutch.



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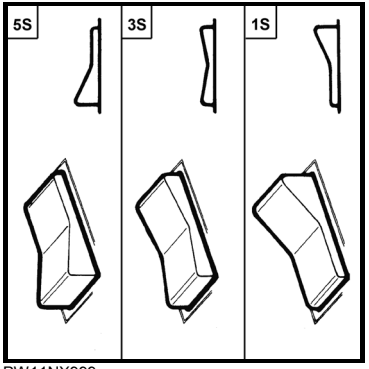
5S – (the upper part of the switch is completely depressed) this position results in the longest delay between switching on the rear PTO switch and a complete activation of the PTO shaft clutch.

3S – (the switch is in its middle position) this position results in a middle-length delay between switching on the rear PTO switch and a complete activation of the PTO shaft clutch.

1S – (the lower part of the switch is completely depressed) this position results in the shortest delay between switching on the rear PTO switch and a complete activation of the PTO shaft clutch.

POLICY OF CORRECT USE FOR PROXIMA POWER TRACTORS

USING THE REAR PTO SHAFT DELAY SWITCH



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5S – use this mode to start PTO shaft connected light machines with low engine power take-off such as tedding machines

3S – use this mode to start PTO shaft connected light machines with middle engine power take-off such as disc reaping machines

1S – use this mode to start PTO shaft connected heavy machines with high engine power take-off such as feeding machines, drum reaping machines, and field and forest cultivators.

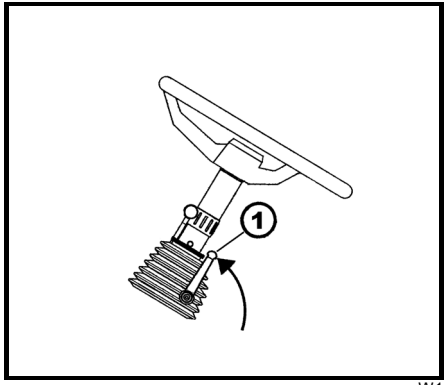
STARTING THE REAR PTO SHAFT

- After selecting the mode with the rear PTO delay switch, switch on the rear PTO start switch.
- If the power take-off of the rear PTO shaft connected machine makes it possible, switch on the rear PTO shaft clutch with the rotation of the engine no higher than 1,000 RPM, after activating the clutch and starting the machine, regulate the rotation as needed.
- If it is necessary to stop and accelerate the tractor again and the machine connected to the rear PTO shaft is in operation, follow the instructions under the paragraph **Stopping the tractor and accelerating it again.**

REAR PTO SHAFT – TYPE 540/540E

Following the instructions below when using the rear PTO shaft helps to extend the durability of the clutch.

- If the tractor is equipped with rear PTO shaft of the 540/540E type, it should be preferred to use 540E rotation to operate the rear PTO shaft connected machine when the preferred rotation of the rear PTO shaft is reached with the engine rotation of about 1,600 RPM



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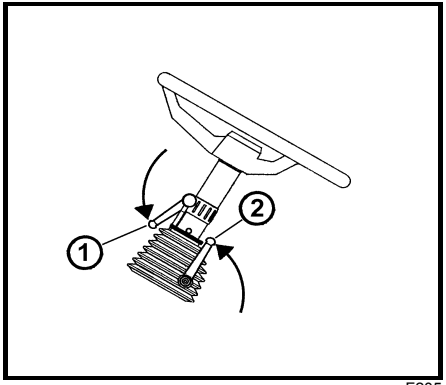
***TILT STEERING WHEEL**

Adjusting the angle of the wheel
The angle can be adjusted by tilting the wheel after it is unlocked by moving the lever (1) in the direction shown by the arrow. After adjusting, lock the wheel by pressing the lever (1) in the opposite direction than shown by the arrow.



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***TILT AND TELESCOPE STEERING WHEEL**

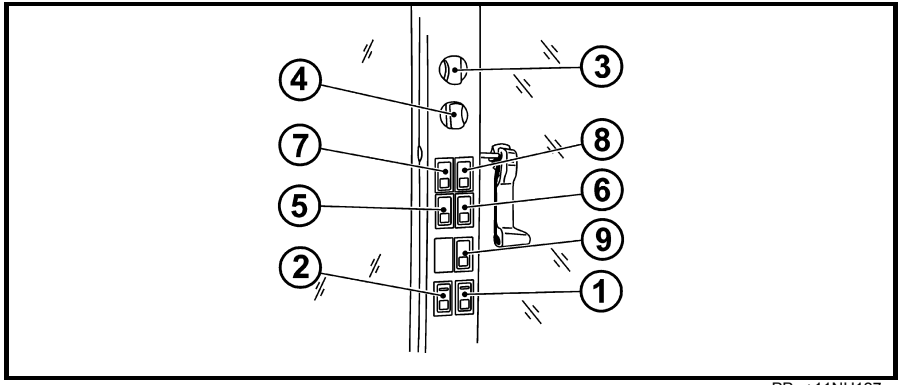
Tilt column of the steering wheel enables to adjust the angle and height of the wheel.

Adjusting the height
To adjust height, pull the wheel up or push it down after it is unlocked by moving the lever (1) in the direction shown by the arrow. After adjusting, lock the wheel by pressing the lever (1) in the opposite direction than shown by the arrow.

Adjusting the angle
To adjust angle, tilt the wheel after it is unlocked by moving the lever (2) in the direction shown by the arrow. After adjusting, lock the wheel by pressing the lever (2) in the opposite direction than shown by the arrow.

After adjusting, tilt the lever (2) towards the dashboard and the lever (1) in such a way so that it is parallel to the steering wheel column axis.

Pushing the levers in the direction farther from the steering wheel column changes the position of the levers as desired.



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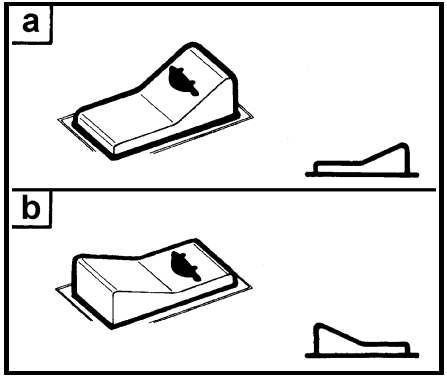
CONTROL PANEL ON THE CAB RIGHT PILLER

1- rear PTO shaft switch
2- front shaft switch
3- two-position switch of the windscreen wiper and washer
4- rear window wiper switch
5- switch of front working lights on cab roof
6- switch of rear working lights on cab roof
7- *rear mirrors heating switch
8- *rear window defroster switch
9- delay of the rear PTO shaft. 3 modes according to the tool connected:
   5S – use this mode to start PTO shaft connected light machines with low engine power take-off such as tedding machines
   3S – use this mode to start PTO shaft connected light machines with middle engine power take-off such as disc reaping machines
   1S – use this mode to start PTO shaft connected heavy machines with high engine power take-off such as feeding machines, drum reaping machines, and field and forest cultivators.



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CONTROLLER OF MULTIPLIER PRE-SELECTION

a - Pre-selection controller off
b - Pre-selection controller on

Position (b) pre-selection controller on is signalled by a lit symbol on the controller

If the pre-selection controller is off **(a),** the gears of multiplier can be changed by buttons on speed gear lever.
If the pre-selection controller is on **(b),** the gears of multiplier can be changed automatically depending on the engine revolutions according to pre-set values.

AUTOMATIC GEAR CHANGE OF MULTIPLIER

The system of automatic gear change of multiplier is switched on by pre-selection multiplier controller on dashboard. If the controller of multiplier pre-selection is “on” (the control on controller is lit), the gears of multiplier are shifted automatically depending on the revolution of engine based on predefined values (engine revolutions).

The system of automatic gear change of a multiplier is not dependent on the changed speed gear.

With a switched-on controller of multiplier pre-selection, it is possible to both turn off the engine and to start it, and the saved values (engine revolutions) do not change.

The values for automatic shift of multiplier are read always when the controller of pre-selection is off, when tractor is operated with engine revolutions higher than 700 rev/min, or with taxiing speed of tractor higher than 2 km/h.

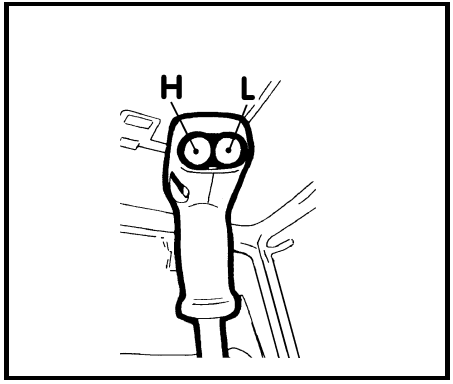
If previous conditions are met, the system remembers:

a - Engine revolutions with last use of **L** button on gear lever for automatic shifting of multiplier gears for lowering the taxiing speed

b - Engine revolutions with last usage of **H** button on a gear lever for automatic change of gears of multiplier for increasing the taxiing speed

The difference between the revolutions of an engine for **a** and **b** must be bigger than 250 revolutions/min

INTRODUCTION



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Example of utilization:
We are driving a tractor with a switched off controller of a multiplier pre-selection with a multiplier shifted to **M** gear (one control light with a “turtle” symbol is lit), with 1600 revolutions/min of engine, we press **L** button on a gear lever, by this we shift multiplier of twisting moment to **L** degree (two controls with “turtle” symbol are lit). Now we increase the speed of tractor to 1900 revolutions/min of engine and we press **H** button on a gear, by this we shift the multiplier of twisting moment back to **M** gear (one control with a “turtle” symbol is lit). We continue in the ride. Now we turn on the controller of multiplier on dashboard. From this time on, the system of automatic gear change shifts the gear of multiplier of twisting moment without any intervention of a driver in the following way:

a - With decline of engine revolutions under 1600 revolutions/min, the multiplier automatically changes to a lower gear (lowering taxiing speed)

b - When increasing the revolutions of engine above 1900 revolutions/min, the multiplier automatically changes to a higher gear (increasing taxiing speed)

1600 and 1900 engine revolutions values necessary for automatic gear change of multiplier used in this example is purely informative, in practice, the number of engine revolutions is set by a driver based on the specific use of a tractor.

With a pre-selection multiplier controller on, it is possible to change the gears of multiplier also manually by button on a gear lever but only in the range of pre-set values (engine revolutions), i.e. in the used example in the range of engine revolutions between 1600 to 1900 revolutions/min, when reaching the saved revolutions for automatic gear change of multiplier gear, the gear is automatically changed without a driver’s intervention.
In this case (controller of pre-selection multiplier is on), manual gear change of multiplier by button on a gear lever does not influence the values (engine revolutions), which are saved in the system of automatic gear change of multiplier.
After turning off the controller of multiplier pre-selection on dashboard (control on controller is not lit), it is possible to change the gears of multiplier of the twisting moment only manually by buttons on a gear lever.

Attention!
*With taxiing when controller of multiplier pre-selection on dashboard is off, the system of automatic gear change of a multiplier keeps reading the values (engine revolutions) with every use of **H** or **L** buttons on a gear lever. After turning the controller of multiplier pre-selection on, the system of automatic shift of multiplier uses the last read values (engine revolutions), i.e. the values read with the last use of **H** and **L** button on a gear lever with controller of multiplier pre-selection off.*

INTRODUCTION

Recommendations:
Prior to turning on the controller of multiplier pre-selection on dashboard, shift manually while driving a multiplier gear by means of **H** and **L** buttons (once with **H** button and once with **L** button) on a gear lever with requested engine revolutions. The values (engine revolutions) are saved and with subsequent switch of the controller of multiplier pre-selection on dashboard, the system of automatic gear change of multiplier will shift the gears of multiplier automatically according to these engine revolutions.

With a controller of pre-selection multiplier on, in the event of travel clutch release, for example while shifting gears, stopping and subsequent starting of a tractor or while using reversal, the system of automatic multiplier shift with subsequent closure of taxing clutch sets a suitable gear of multiplier automatically.

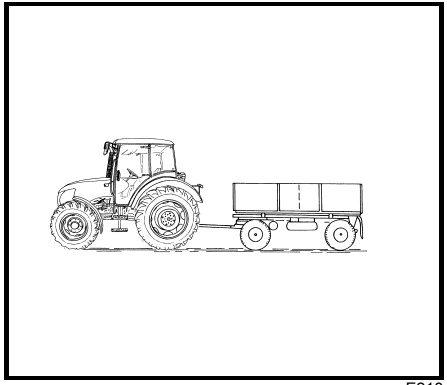
BLOCKING AND AUTOMATIC GEAR CHANGE OF MULTIPLIER

If brake pedals are used with the controller of multiplier pre-selection on, the system of automatic gear change of multiplier blocks the automatic shift of multiplier to a higher gear (increasing taxing speed), automatic shift of multiplier to lower gear (lowering taxing speed) remains in operation.
Cancelling the blockage:

a - In the event when brake pedals were used with taxing speed higher than 12 km/h, the full-function of the system of automatic gear change of a multiplier is reset by releasing brake pedals and pressing any key for multiplier operation on gear lever (**H** or **L**) or we release a travel clutch. **The full function of the system of multiplier automatic shift is not renewed automatically.**

b - If the brake pedals are used with taxing speed lower than 12 km/h, the full function of the system of automatic shift of multiplier will be renewed automatically after releasing brake pedals.

Blocking of automatic gear change of multiplier serves for the need of braking with an engine, e.g. while going down the slope.



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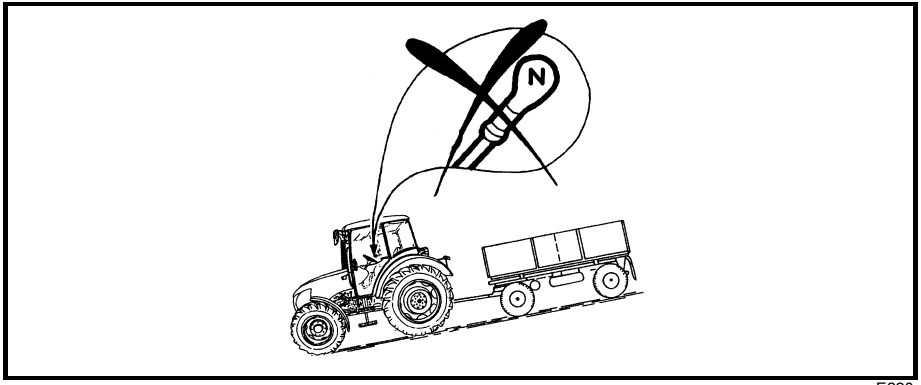

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TRACTOR START

If the engine revolutions with the start of tractor are higher than 1400 revolutions/min, **L** gear of multiplier is automatically shifted (two controls with a turtle symbol are lit) while it is not important whether the controller of multiplier on dashboard is on or off.

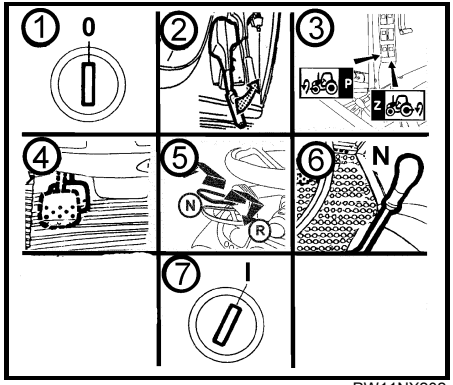
If the controller of multiplier on dashboard is on, while starting the tractor, **L** gear of multiplier is always automatically shifted (two controls with a "turtle" symbol are lit) independent on the number of engine revolutions while starting (i.e. even when the engine revolutions are lower than 1400 revolutions/min).

RIDE DOWN THE SLOPE

A ride down the slope without a geared speed is forbidden. If you go down from a longer slope, the rule is: the steeper the slope is, the lower gear should be used. Shift the lower gear before the slope, if possible.

Note: The gear with which you easily overcome the slope is the same gear with which you go down safely.

Prior to a ride down the slope, use the blocking of system of automatic shift of multiplier by using brake pedals. This blocks the automatic gear change of multiplier to higher gear (increasing the taxing speed), or, turn the controller of multiplier pre-selection off.



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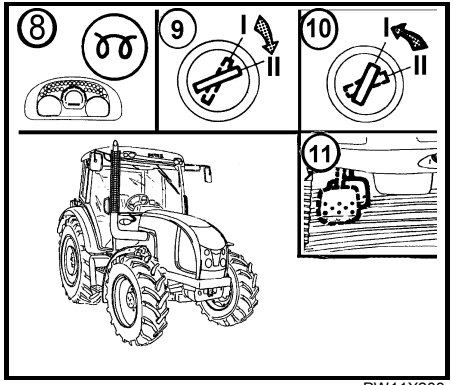

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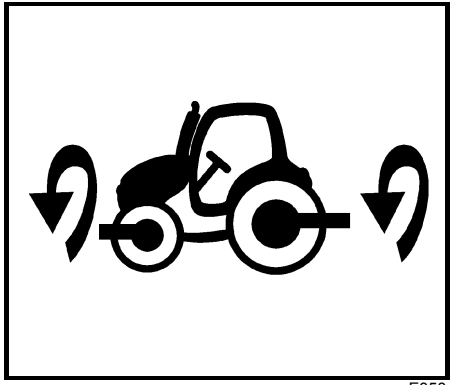
STARTING THE ENGINE

1. Put the key in ignition - ”0” position.
2. Make sure the parking brake is set.
3. Switch off PTO on the cab right piller.
4. Depress the clutch pedal.
5. Move the reversation lever located under the steering wheel the the neutral position.
6. Move the gear lever to the neutral position.
7. Turn the key to “I“ position. The glow plug indicator illuminates.
8. Wait till the glow plug indicator goes out (the time depends on the temperature of the liquid coolant).

If the glow plug indicator does not illuminate but flashes, there is an error of the ignition system (Ignition system error singals chapter). Have the error repaired in a specialized service station.

9. When the indicator goes out, turn the key immediately (do not wait for longer than 5s at maximum) to “II“ position (start).
10. After ingition, release the key immediately, it automatically turns back to ”I” position. **Do not extend the starting process to more than 15s.**
11. Release the clutch pedal.

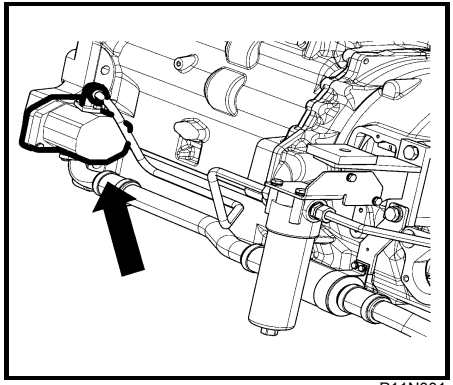
AGRICULTURE MACHINERY DRIVE



E358

MAXIMUM TRANSFERED POWER

Shaft	Transferred Power
front	
1000 min^{-1}	60 kW
rear	
1000 min^{-1}	full engine output
540 min^{-1}	full engine output
540E min^{-1}	full engine output



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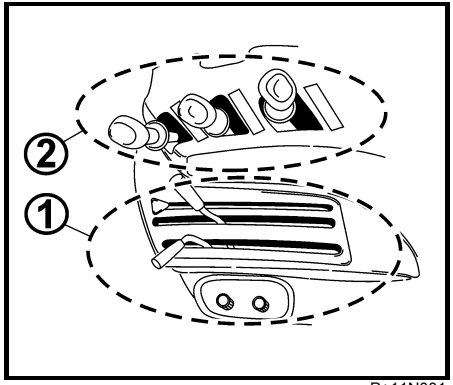
HYDRAULIC SYSTEM

It consists of the inner and outer circuits. Gear pump is the source of pressure oil. Oil is taken from reservoir shared by gearbox and transmission.

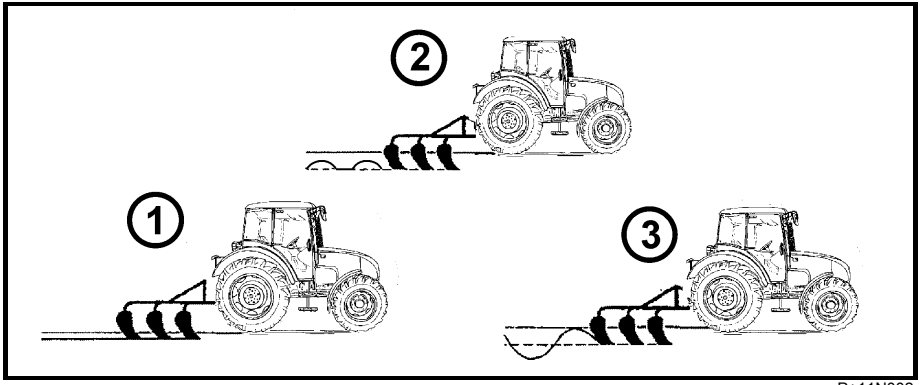
Hydraulic pump cannot be switched off. If the engine is working, the pump is on. The amount supplied is 50 liters per minute.

The pressure in hydraulic system raised by the hydraulic pump is restricted by a safety valve to 19 MPa.

HYDRAULIC SYSTEM



P+11N001



P+11N002

HYDRAULICS CONTROL PANEL

Hydraulics control panel is located in the area of the right wing.

Controlling the rear three-point hitch is enabled by the inner hydraulic circuit (1).

Controlling outer hydraulic circuits (couplers) is enabled by outer hydraulic circuit (2).

WAYS TO REGULATE INNER HYDRAULIC CIRCUIT

Hydraulic system allows of three ways to regulate the lifting of the rear three-point hitch:

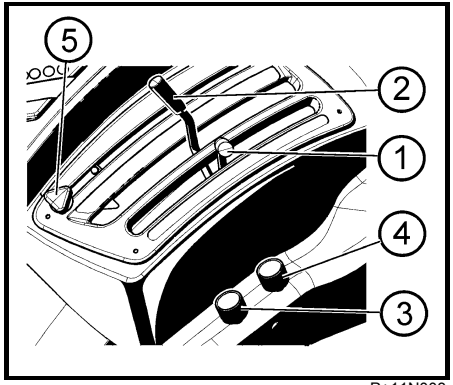
Position regulation (img. 1) – the tool connected to the rear three-point hitch is automatically kept in the same height (position) with regard to the tractor.

Mixed regulation (img. 2) – a combination of position and power regulation. Suitable mainly for tilling areas of different soil resistance.

Power regulation (img. 3) – the tool connected to the three-point hitch is automatically being adjusted depending on changing soil resistance.

All the regulations can also be used when working with a tool equipped with a support wheel in so-called free (floating) position.

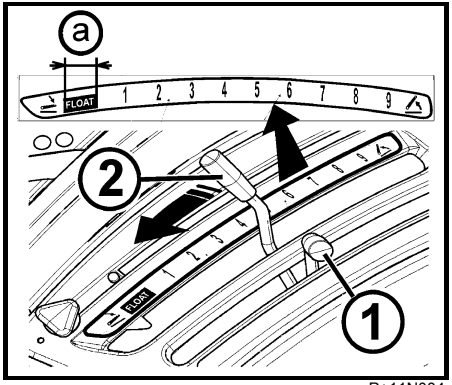
HYDRAULIC SYSTEM



P+11N003

CONTROLLING THE INNER HYDRAULIC CIRCUIT

1. position or power regulation lever
2. lever for selecting floating position, adjusting the height of the three-point hitch in position regulation or mixed regulation.
3. three-point hitch lowering speed control
4. hydraulic system sensitivity control
5. adjustable stop

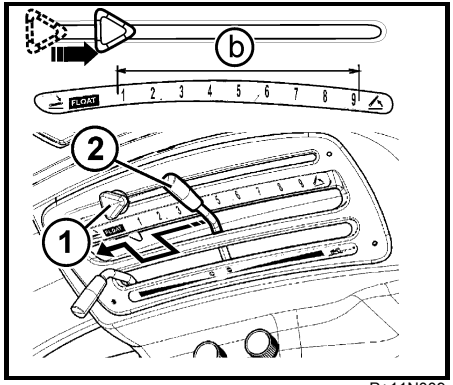


P+11N004

FREE (FLOATING) POSITION

Free (floating) position makes it possible to work with tools with a support wheel. In this position, the arms of the rear three-point hitch are loose.

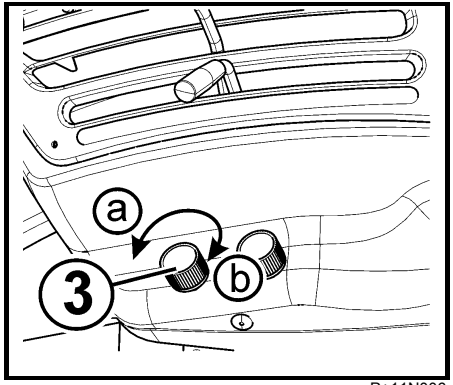
Move lever (2) to the front position (a). The position of lever (1) makes no difference.



P+11N009

ADJUSTABLE STOP

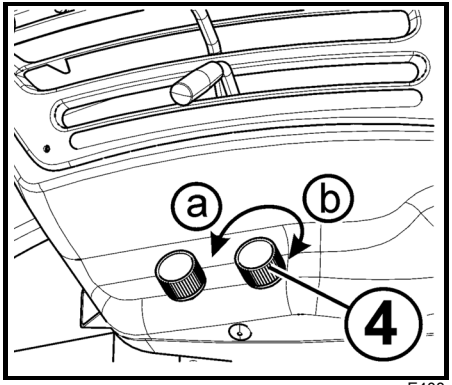
Under default settings, it is recommended to set the adjustable stop (1) to a position on the edge between floating position and the beginning of the range of lifting of the rear three-point hitch (b). After pushing the lever towards you, the lever can be moved over the adjustable stop.



P+11N006

THREE-POINT HITCH LOWERING SPEED CONTROL

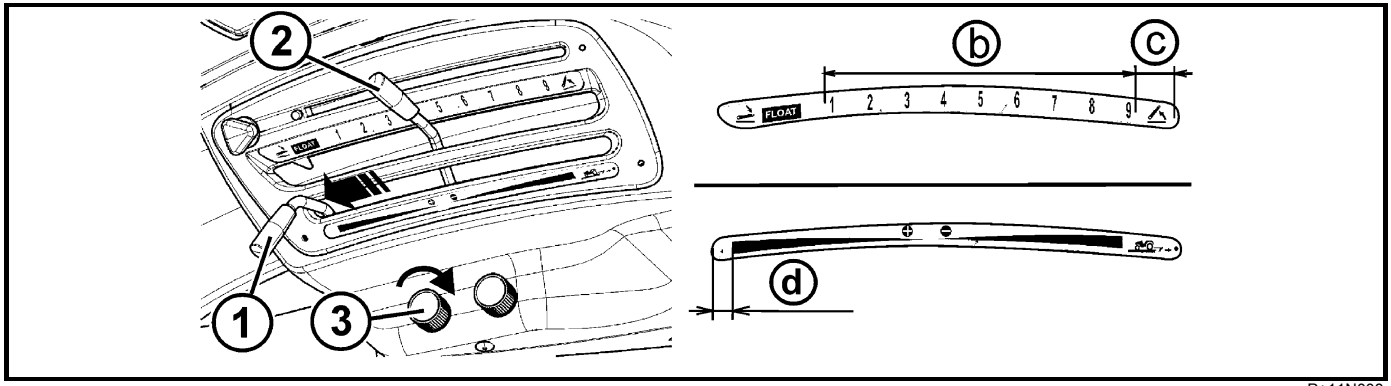
Three-point hitch lowering speed control (3) selects the speed of lowering the arms of the rear three-point hitch. Turning the knob in (b) direction reduces the lowering speed of the arms of the rear three-point hitch, turning it in (a) direction increases the speed. If the knob is turned in (b) direction to its stop point, the arms of the rear three-point hitch cannot be lowered.



E408

HYDRAULIC SYSTEM SENSITIVITY CONTROL

Hydraulic system sensitivity control (4) adjusts the sensitivity of the hydraulics in power or mixed regulation. Turning the knob in (a) direction increases sensitivity, turning it in (b) direction decreases sensitivity.



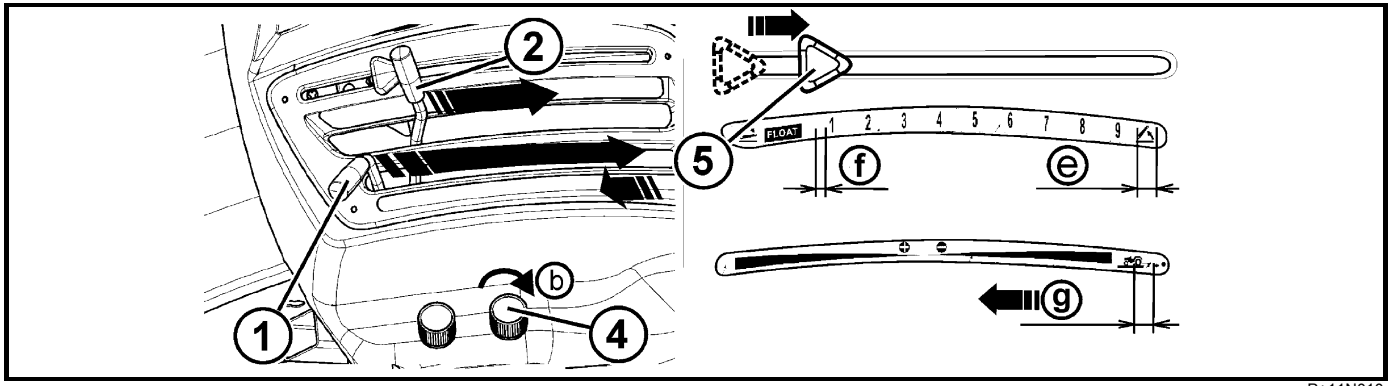
P+11N008

POSITION REGULATION OF THE LIFTING OF THE REAR THREE-POINT HITCH

Position regulation of the lifting of the rear three-point hitch means that the tool connected to the rear three-point hitch is automatically kept in the same height (position) with regard to the tractor.

Move lever (1) to the front position (d). Adjust the height of the rear three-point hitch with tools within the (b) range by lever (2). Adjusting the height is smooth within the range 1-9. In position 1, the arms of the rear three-point hitch are in the lower position, in position 9, in the highest position. Position (c) is a transport position when the tools connected to the rear three-point hitch is raised at maximum.

To transport tools which are connected to the rear three-point hitch always use position regulation.
To raise tools into transport position, turn the three-point hitch lowering speed control knob (3) in the direction shown by the arrow up to the stop point, which results in interrupting the oil flow in hydraulics. Should tools connected to the rear three-point hitch not be lowered, check the position of the speed lowering control knob (3) – turn it in the opposite direction than shown by the arrow.
If tools connected to the rear three-point hitch are long and heavy, the arms of the rear three-point hitch may get locked in the transport position during transport. If the lowering speed control knob (3) is loosened and the tools still cannot be lowered, move lever (2) to the floating position (c) for a short time and immediately get back to the lowering range (d). The arms of the rear three-point hitch start to go down as set by lever (2).



P+11N010

POWER REGULATION OF THE LIFTING OF THE REAR THREE-POINT HITCH

Power regulation of the lifting of the rear three-point hitch means that the tool connected to the rear three-point hitch is automatically being adjusted depending on changing soil resistance.

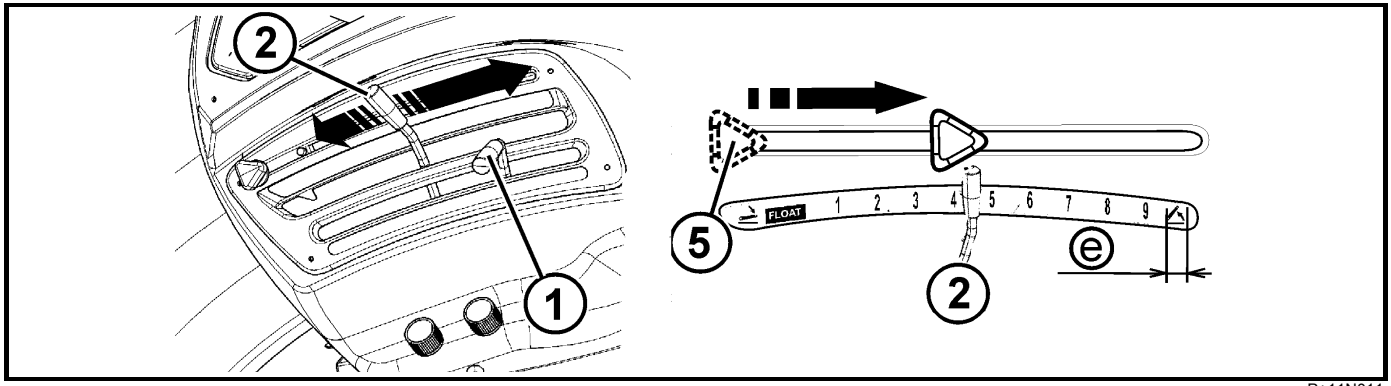
Set the adjustable stop (5) to a position on the edge between floating position and the beginning of the range of lifting of the rear three-point hitch.

Move lever (2) to (f) position – to the adjustable stop (5).

Move lever (1) to (g) position, accelerate the tractor and move lever (1) in the direction shown by the arrow to set the depth of tilling (in (g) position, depth is the lowest).

Once the depth of tilling is set, lever (1) must be kept in constant position. At the end of each row, raise the tool connected to the rear three-point hitch only by moving lever (2) to (e) position. To lower the tool to its operating position again, move lever (2) to (f) position.

The rear three-point hitch may start oscillating under the influence of changing soil resistance. To reduce oscillation, set lower hydraulic system sensitivity by turning the control knob (4) in (b) direction.

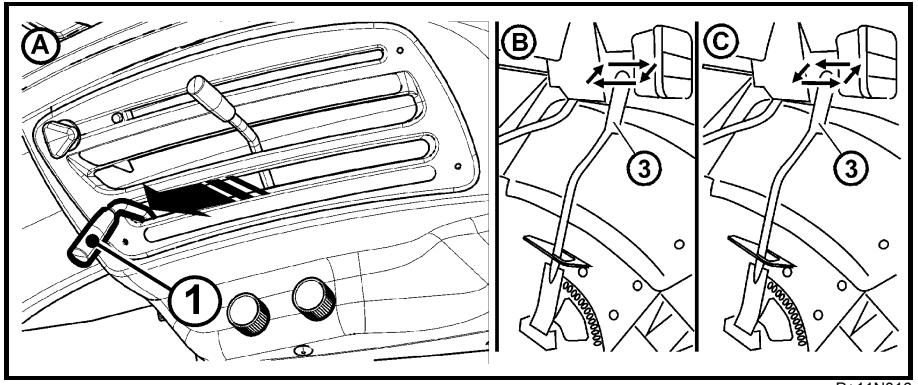


P+11N011

MIXED REGULATION OF LIFTING THE REAR THREE-POINT HITCH

Mixed regulation of lifting the rear three-point hitch means that the tool connected to the rear three-point hitch is automatically being adjusted depending on changing soil resistance and at the same time it prevents any increase in depth of tilling in case of smaller soil resistance.

Set the depth of tilling by lever (1) as described in “Power regulation of the lifting of the rear three-point hitch“. Then start moving lever (2) in the direction shown by the arrow until the arms of the rear three-point hitch start to rise slightly. Herewith, mixed regulation has been set. Move the adjustable stop (5) to lever (2) which has been set and lock it. At the end of each row, raise the tool connected to the rear three-point hitch only by moving lever (2) to (e) position. To lower the tool to its operating position again, move lever (2) to the preset stop.



P+11N016

EXTERIOR REAR HYDRAULIC ARMS CONTROLS

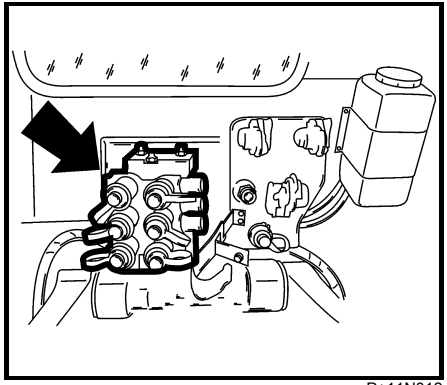
Exterior rear hydraulic arms controls are located on the rear right wing. They make it easier for the operator to conncet tools by controlling the movements of the lower drawbars of the three-point hitch from the outside. They only serve for connceting and disconnecting the tools.

Img. (A)

Before using exterior controls, move the power regulation lever (1) to its utmost position.

Lowering hydraulic arms img. (B):
Move lever (3) in the direction shown by the arrows (moving the lever is restricted with a link). By repeating this procedure, hydraulic arms are lowered in small steps.
Raising hydraulic arms img. (C):
Move lever (3) in the direction shown by the arrows (moving the lever is restricted with a link). By repeating this procedure, hydraulic arms are raised in small steps.

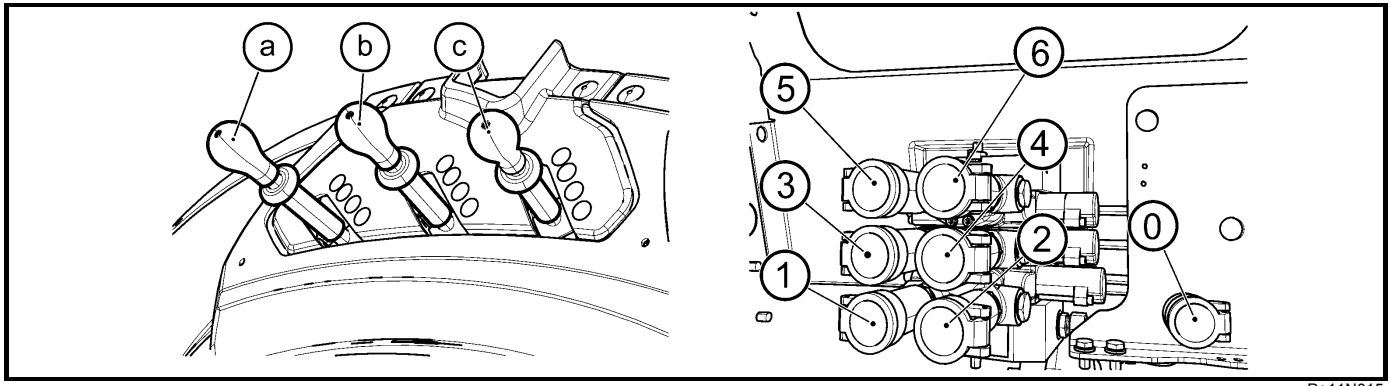
If the lifting device controlled by exterior controls is loaded, movement of the lower drawbars within one step (on the exterior controls) is longer than if unloaded.



P+11N012

OUTER HYDRAULIC CIRCUIT

It supplies pressure oil for hydraulic devices on outer drives of hydraulics ended with couplers. Coupler sockets with 12.5 mm bore are in accordance with the international recommendation of ISO.



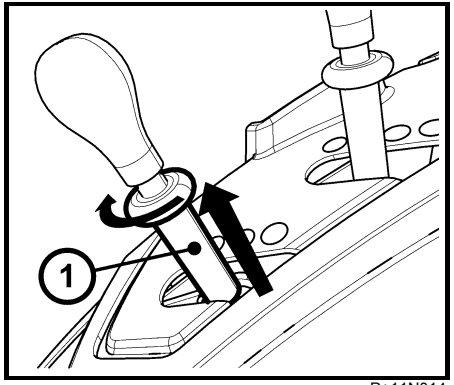
P+11N015

OUTER HYDRAULIC CIRCUIT CONTROLS

Outer hydraulic circuit controls are located on the right wing.
lever (a) controls the lower section of distributor – quick couplers (1) and (2)
lever (b) controls the central section of distributor – quick couplers (3) and (4)
lever (c) controls the upper section of distributor – quick couplers (5) and (6)
Quick coupler (0) is directly connected with transmission and it is supposed for recuperative oil of exterior hydraulic appliances (e.g. from rotary hydraulic engines etc.).

According to the equipment of the tractor, the following combinations of control levers and quick couplers can be supplied:
lever (a) – quick couplers (1) and (2)
levers (a) and (b) – quick couplers (1), (2), (3) and (4)
levers (a),(b) and (c) – quick couplers (1), (2), (3), (4), (5) and (6)
Quick coupler (0) is supplied in any case.

If the tractor is equipped with front three-point hitch, use lever (b) to control it. When the front three-point hitch is used, quick couplers cannot be connected as they are pressured together with the front three-point hitch! When you finish using the front three-point hitch and want to use the section with quick couplers 3 and 4 with connection to the front three-point hitch, raise the arms of the front three-point hitch to the transport position and move the front three-point hitch lever to the „locked“ position.



P+11N014

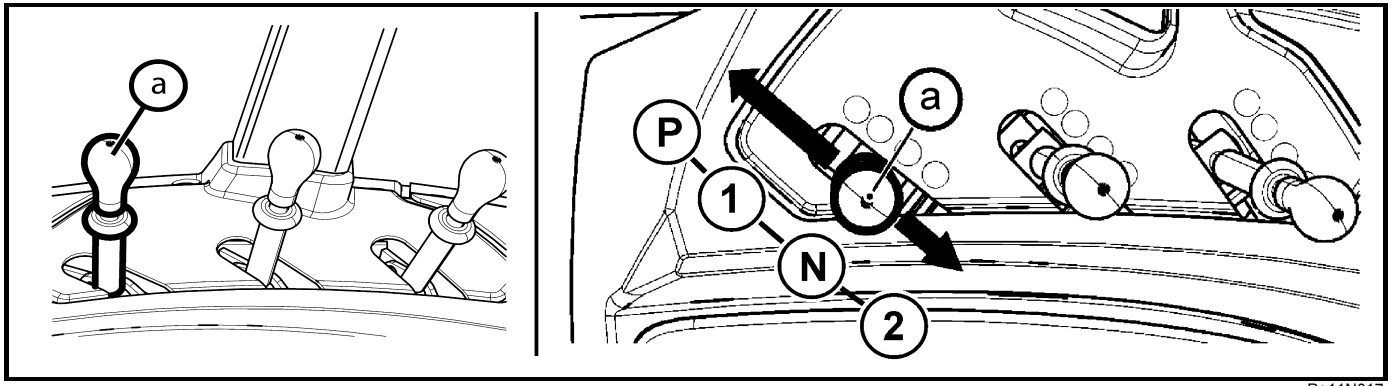
LOCKING CONTROL LEVERS

Outer hydraulic circuit control levers are locked in neutral (N) position.

To unlock them, raise the lock control (1) and turn it to a stop point in the direction shown by the arrow.

To lock them again, move the levers to neutral (N) position and turn the lock control in the opposite direction than shown by the arrow to a stop point and push the control down. This locks the lever in neutral position.

For safety reasons, always lock outer hydraulic circuit levers in neutral position (N).



P+11N017

DIFFERENT FUNCTIONS OF OUTER HYDRAULIC CIRCUIT CONTROL LEVERS

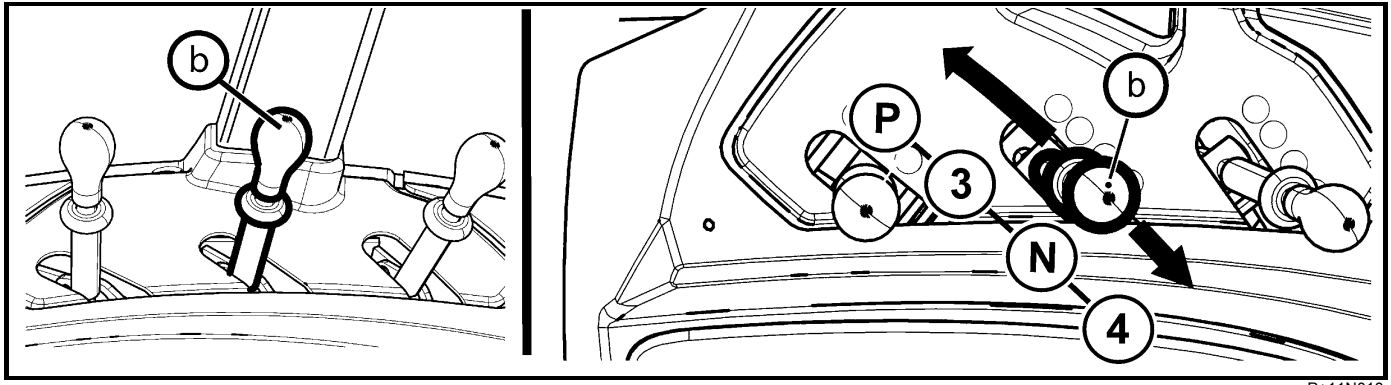
There are four positions of the lever (a):

N - Neutral position. Quick coupler drives (1) and (2) are closed and oil in the hydraulic appliance connected is blocked. Lever (a) is locked in this position.

1 - Pressure in quick coupler (1). Quick coupler (2) is connected with the drain. Lever (a) is locked in this position. In case pressure exceeds 16.5 MPa when connected to quick coupler (1), lever (a) automatically returns to (N) position – „kick-out" function.

2 - Pressure in quick coupler (2). Quick coupler (1) is connected with the drain. Lever (a) is locked in this position. In case pressure exceeds 16.5 MPa when connected to quick coupler (2), lever (a) automatically returns to (N) position – „kick-out" function.

P - Floating position. Both quick couplers (1) and (2) are connected with the drain and oil is free to flow in both directions. Lever (a) is locked in this position.

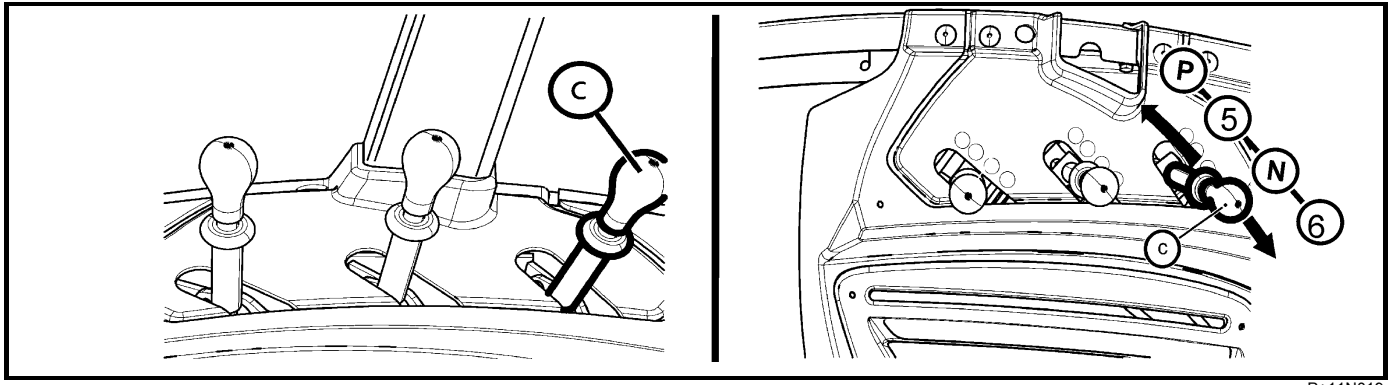


P+11N018

DIFFERENT FUNCTIONS OF OUTER HYDRAULIC CIRCUIT CONTROL LEVERS

There are four positions of the lever (b):

- **N** - Neutral position. Quick coupler drives (3) and (4) are closed and oil in the hydraulic appliance connected is blocked. Lever (b) is locked in this position.
- **3** - Pressure in quick coupler (3). Quick coupler (4) is connected with the drain. It is necessary to hold lever (b) in this position, when released, lever (b) automatically returns to (N) position. In addition, quick coupler (3) is equipped with a one-way valve – convenient for connecting a tool which requires higher degree of impermeability – minimum lowering of the tool during transport.
- **4** - Pressure in quick coupler (4). Quick coupler (3) is connected with the drain. Lever (b) is locked in this position.
- **P** - Floating position. Both quick couplers (3) and (4) are connected with the drain and oil is free to flow in both directions. Lever (b) is locked in this position.

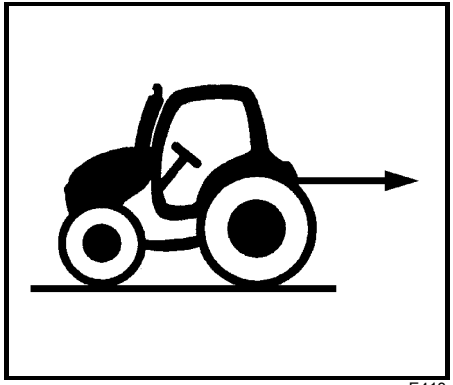


P+11N019

DIFFERENT FUNCTIONS OF OUTER HYDRAULIC CIRCUIT CONTROL LEVERS

There are four positions of the lever (b) which controls quick couplers (5) and (6):

- **N** - Neutral position. Quick coupler drives (5) and (6) are closed and oil in the hydraulic appliance connected is blocked. Lever (c) is locked in this position.
- **5** - Pressure in quick coupler (5). Quick coupler (6) is connected with the drain. It is necessary to hold lever (c) in this position, when released, lever (c) automatically returns to (N) position. In addition, quick coupler (5) is equipped with a one-way valve – convenient for connecting a tool which requires higher degree of impermeability – minimum lowering of the tool during transport.
- **6** - Pressure in quick coupler (6). Quick coupler (5) is connected with the drain. Lever (c) is locked in this position.
- **P** - Floating position. Both quick couplers (5) and (6) are connected with the drain and oil is free to flow in both directions. Lever (c) is locked in this position.



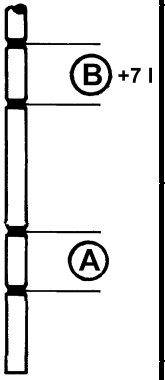
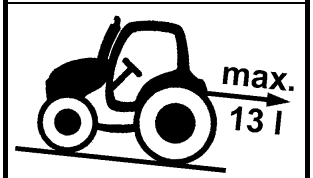
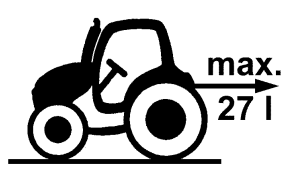
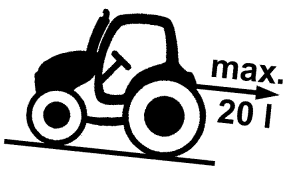
E413

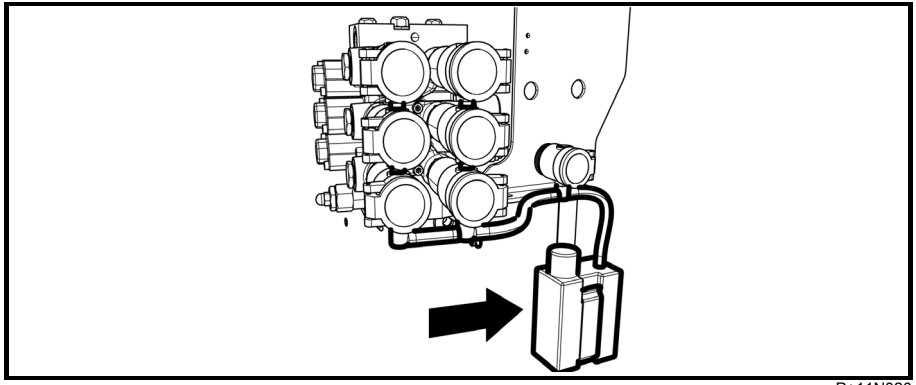
AMOUNT OF OIL TAKEN FROM OUTER HYDRAULIC DRIVES

For maximum amount of oil taken see the following table.

If the amount taken exceeds the limit, hydraulic pump can absorb air and can get damaged.

If the amount of oil in transmission decreases after disconnecting the tool due to its permanent outflow out of the tractor into the machine's hydraulic circuit, refill the oil missing.

		***Working area:*** in flat terrain ***Max. amount of oil taken:*** 20 liters ***Gearbox filling:*** standard filling within the range shown by lines (A)
		***Working area:*** in a slope ***Max. amount of oil taken :*** 13 liters ***Gearbox filling :*** standard filling within the range shown by lines (A)
		***Working area :*** in flat terrain ***Max. amount of oil taken :*** 27 liters ***Gearbox filling :*** within the range shown by lines (B) gearbox oil filling increased by 7 liters (max. amount of oil in gearbox allowed)
		***Working area :*** in a slope ***Max. amount of oil taken :*** 20 liters ***Gearbox filling :*** within the range shown by lines (B) gearbox oil filling increased by 7 liters (max. amount of oil in gearbox allowed)



P+11N020

***QUICK COUPLERS WITH DRIPPING OIL RESERVOIR**

On request, dripping system for holding leakage oil can be installed. Check the reservoir regularly; if it is full, empty it ecologically.

CONNECTING AND DISCONNECTING QUICK COUPLERS

When connecting or disconnecting quick couplers, be careful about leakage oil which rests on the coupler socket.

To behave ecologically, remove the leakage oil each time after disconnecting the couplers with a textile cloth.

HYDRAULIC SYSTEM

CONNECTING MACHINERY AND TOOLS TO OUTER HYDRAULIC CIRCUIT

Connecting a double acting cylinder

A double acting cylinder must always be connected to quick couplers of one section.

Connecting machinery and tools assembled from more parts

When working with agriculture machinery which is assembled from more parts (combinators, scrubbers, or harrows) where the edge frame is hinged to the central frame because it is diagonally folded during transport by independent hydraulic cylinders which are controlled by outer hydraulic circuit of the tractor, it is recommended to connect the lifting arms of the cylinders to quick couplers (3) and (5) which are equipped with a one-way valve.

Connecting rotary hydraulic engine

If a hydraulic engine is connected to outer hydraulic drive, it is always necessary to connect its returnable arm to quick coupler (0). Filling (pressure) arm can be connected to quick couplers (1) or (2), where the hydraulic engine is protected by the “kick-out” function from overload. This function stops the hydraulic engine if pressure in the filling arm exceeds 17 MPa.

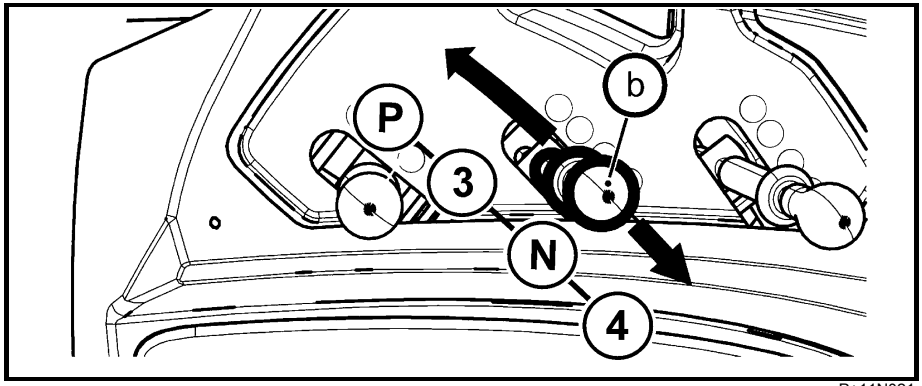
Connecting reverse rotary hydraulic engine

Due to its function, reverse rotary hydraulic engine must be connected to quick couplers of one section. It is recommended to use quick couplers (1) and (2), where the hydraulic engine is protected by the “kick-out” function from overload. This function stops the hydraulic engine if pressure in the filling arm exceeds 17 MPa. If the hydraulic engine is connected to quick couplers of different sections, both arms must be equipped with safety valves which can be relied on to restrict high pressure peaks during run-out. Connect the safety valves drain to quick coupler (0).

Connecting external hydraulic distributor

It is recommend to connect external hydraulic distributor to quick couplers (4) or (6). Control levers (b) and (c) are mechanically locked in these positions without hydraulic lock.

Connectable machinery which makes use of oil in outer hydraulic circuit must be filled with the same kind of oil as recommended for tractor gearbox!
Quick coupler sockets of connectable machinery must be cleaned properly before connecting.



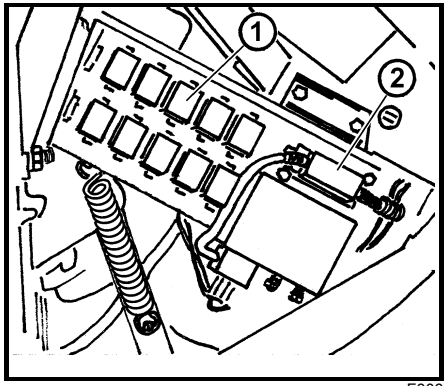
P+11N021

COTROLLING FRONT THREE-POINT HITCH

The hitch is equipped with two single acting hydraulic cylinders which are supplied with oil from an additional hydraulic distributor. To lift or lower, use lever (b) of the additional distributor.

3 position	lifting
4 position	lowering
N position	locking the hitch
P position	not to be used

If the tractor is equipped with front three-point hitch, use lever (b) to control it. When the front three-point hitch is used, quick couplers cannot be connected as they are pressured together with the front three-point hitch! When you finish using the front three-point hitch and want to use the section with quick couplers 3 and 4 with connection to the front three-point hitch, raise the arms of the front three-point hitch to the transport position and move the front three-point hitch lever to the „locked“ position.



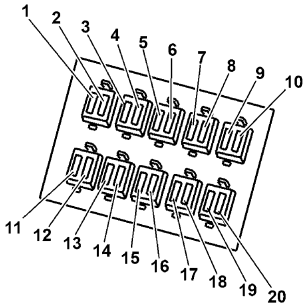
F306

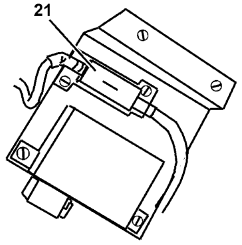
FUSE BOX

Accessible after removing the left cover of the steering bracket.

Blade fuses (1) are used; replace with fuses of the same value only. If a fuse breaks repeatedly, consult the nearest service station.

Tape glow fuse (2) with the value of 80A.

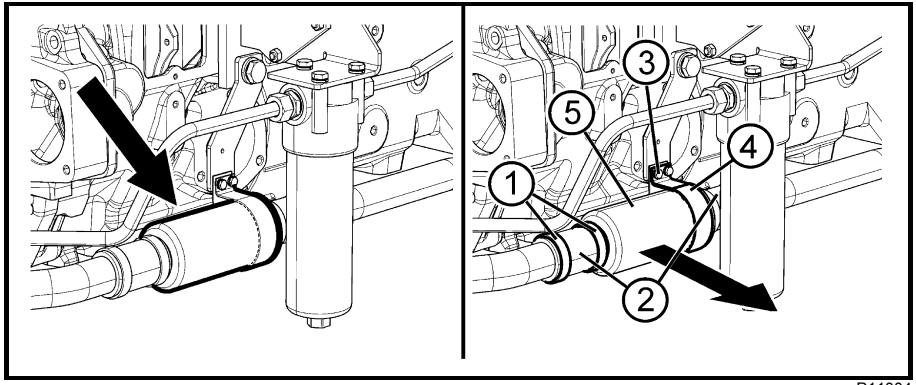




D307

Location of fuses in fuse box	Position	Fuse value	System to which it applies
	1	15A	warning lights chopper, breaking lamps
	2	15A	horn, warning beacon
	3	15A	front drive axle control, differential lock control, dashboard power supply
	4	15A	high beam headlamps and indicator
	5	15A	side lamps, dashboard lamps, license plate lamps
	6	15A	right side lamps, rear working lamp and indicator
	7	15A	right low beam headlamps, fog lamps and indicator
	8	7,5A	left headlamp, bonnet mask / roof lamps, indicator
	9	15A	working lamps in the bonnet mask
	*10	3A	Zuidberg front shaft
	11	15A	windscreen and rear window wipers, washers, radio “15“
	12	20A	heater fan, radio “30“
	13	15A	recirculation, lighter
	*14	7,5A	air-conditioning (compressor clutch)
	*15	15A	mirror heating
	*16	15A	rear window defroster
	*17	15A	driver’s seat compressor
	18	20A	3-pole socket
	*19	15A	front working lamps on the roof
	*20	15A	rear working lamps on the roof
	21	80A	glowing

CHANING FILLINGS AND FILTERS						
	with a new tractor or with a tractor after a general repair					
Motohours	100	500	1 000	1 500	2 000	and then always after reaching.....motohours
Changing engine oil	o	o	o	o	o	500
Changing insertion of oil cleaner	o	o	o	o	o	500
Changing insertion of fuel cleaner		o	o	o	o	500
Changing insertion of air cleaner			o		o	1000
Changing safety insertion piece of air cleaner					o	2000
Changing insertion piece of heater filter						every 1000 Mth or every 2 year
Changing coolant						every 2 year
Changing brake fluid						every 2 year
Changing oil in gearbox and transmission				o		1500
Changing oil in rear axle portals				o		1500
Changing insertion piece of gearbox oil cleaner (suction filter of hydraulic pump)	o	o	o	o	o	500
Changing insertion of oil cleaner in delivery filter of hydraulic pump	o		o	o	o	500
Changing insertion of oil cleaner in gearbox transmission	o	o	o	o	o	500
Changing oil in front drive axle housing	o		o		o	1000
Changing oil in front drive axle reductions	o		o		o	1000
Changing oil in hydrostatic steering				o		1500
Changing filter insertion in hydrostatic steering				o		1500
Changing oil in front shaft box and cleaning sieve oil cleaner		o	o	o	o	500

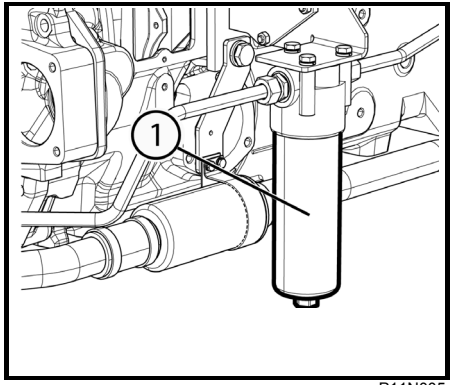


P11004

CHANGING SUCTION FILTER

Suction filter is located on the left side of gearbox. To change the filter, empty the oil from gearbox.

Oil flows out of the hoses while changing the filter. Capture the oil in a clean container.
Loosen cuffs (1) on both sides and pull off the hoses (2). Remove the bolts (3), take off the cuff (4), and remove the filter (5). To place a new filter, proceed contrariwise. Put the oil which has flown out back to gearbox (this holds if it is necessary to change the filter outside the period recommended for changing the filter and oil.



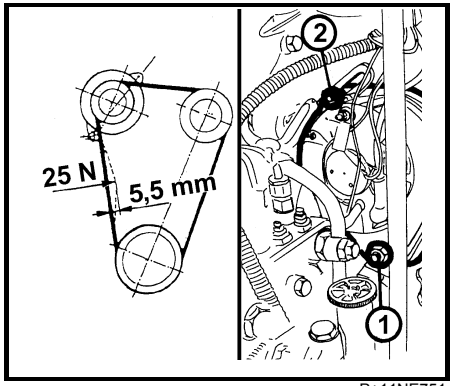
P11N005

CHANING INSERTION OF OIL CLEANER

Oil cleaner is located on the left side of gearbox.

Before changing the insertion of oil cleaner, place a suitable container under the tractor to capture dripping oil.

1. screw out cleaner body (1)
2. change the filter insertion
3. place the cleaner body back in its original position



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STRETCHING THE V-BELT

If the V-belt is stretched correctly, the belt flexure must be 5.5 mm when applying 25 N pressure on one belt.
Stretch the V-belt as recommended after loosening alternator fastening bolts (1, 2).

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Supplement Operator's manual
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